SQL Queries (Section 4.3)

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Hospital Database

Patient

Name	ID	CM	KG
Anderson	100	200	130
Brown	111	150	50
Davis	222	190	90
Edwards	333	160	90
Ford	345	165	100
Hardy	454	175	70
Johnson	567	170	50
Smith	755	180	120

Doctor

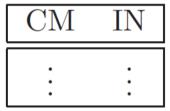
Name	ID	Age	Specialty
Cheney	987	50	pediatry
Hardy	454	53	osteopathology
McBride	377	36	radiology
Miller	300	60	neurology
Moss	244	30	neurology
Nelson	400	76	cardiology
Oltman	181	56	urology
Paine	266	45	cardiology
Pepper	555	42	cardiology
Snow	500	65	radiology

Visit

PID	DID	Month	Day	Year
100	181	5	20	2008
100	555	6	30	2009
111	987	8	20	2009
111	987	5	28	2010
222	266	9	12	2007
222	400	5	20	2008
222	555	5	20	2008
333	987	6	23	2009
345	300	5	16	2009
454	244	6	10	2010
567	377	2	20	2010
567	454	5	28	2010
755	987	6	23	2009

Hospital Database Extended

Height



 \mathbf{Fit}

Type	CM	KG
÷	:	:

Weight



Diet

ID	KG	Month
:	:	÷

SQL Queries

Example 4.3.1 Find the name, inches height, and pound weight of each patient.

SELECT P.Name, H.IN, W.LB

FROM Patient AS P, Height AS H, Weight AS W

WHERE P.CM = H.CM AND

P.KG = W.KG

Example 4.3.2 Find the name of the patients who are underweight.

SELECT P.Name

FROM Patient AS P, Fit AS F

WHERE P.CM = F.CM AND

P.KG = F.KG AND

F.Type = "underweight"

SQL Queries

Example 4.3.3 Suppose that patients Anderson and Smith participate in dieting program. Find the time when Anderson and Smith have equal weight.

SELECT D1.Month

FROM Patient AS P1, Patient AS P2, Diet as D1, Diet AS D2

WHERE P1.Name = "Anderson" AND

P1.ID = D1.ID AND

P2.Name = "Smith" AND

P2.ID = D2.ID AND

D1.KG = D2.KG AND

D1.Month = D2.Month

SQL with Aggregation

Example 4.3.5 Find the number of overweight patients of each doctor.

SELECT D.Name, COUNT(P.Name)

FROM Patient AS P, Doctor AS D, Visit AS V, Fit AS F

WHERE P.ID = V.PID AND

D.ID = V.DID AND

P.CM = F.CM AND

P.KG = F.KG AND

F.Type = "overweight"

GROUP BY D.Name

Nested SQL Query

Example 4.3.7 Find the ID of the dieter who has the least weight at the end of 12 months.

SELECT D.ID

FROM Diet AS D

WHERE D.Month = 12 AND

 $D.KG \le ALL$ (SELECT

FROM Diet AS D

WHERE D.Month = 12)

D.KG

SQL Practice

- 1. Express the following in SQL using the *Taxrecord* and the *Taxtable* relations.
 - (a) Find the tax due from the taxpayer with SSN number 777889999.
 - (b) Find the total taxes due from each taxpayer.
 - (c) Find the SSN of the taxpayer who has to pay the most tax.

Taxrecord

SSN	Wages	Interest	Capital_Gain
111223333	10000	80	0
444556666	28000	400	0
777889999	75000	0	5000

Taxtable

Income	Tax
0	0
:	
10080	1512
:	

Solutions

```
1. (a)
              Tax
   SELECT
   FROM
              Taxrecord, Taxtable
   WHERE
              SSN = 777889999 AND
              Income = Wages + Interest + Capital\_Gain
   (b)
    SELECT
             SUM(Tax)
    FROM
             Taxrecord, Taxtable
    WHERE
             Income = Wages + Interest + Capital\_Gain
   (c)
    CREATE VIEW
                    Due(SSN, Tax) AS
                    SSN, Tax
    SELECT
                    Taxrecord, Taxtable
    FROM
    WHERE
                    Income = Wages + Interest + Capital\_Gain
    SELECT
             SSN
    FROM
             Due
    WHERE
             Tax >= ALL
                           (SELECT
                                     Tax
                           FROM
                                     Due)
```